Aquifer Exemptions

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Outline

- Key Principles of the Safe Drinking Water Act (SDWA) and the Underground Injection Control (UIC) Program
- Background on Aquifer Exemptions
- Roles and Responsibilities
- EPA Review of AE Requests
- Consistency and predictability in the AE review process
  - EPA's Policy Memorandum and Checklist
- Basis for exemption and EPA's assessment

The Safe Drinking Water Act

SDWA and the Underground Injection Control Program are designed to prevent endangerment of underground drinking water sources

(SDWA 1421(b))

Definition (40 CFR 144.3)

- *Underground source of drinking water (USDW)* means an aquifer or its portion:

  (a)(1) Which supplies any public water system; or
  (2) Which contains a sufficient quantity of ground water to supply a public water system; and
  (i) Currently supplies drinking water for human consumption; or
  (ii) Contains fewer than 10,000 mg/l total dissolved solids; and
  (b) Which is not an exempted aquifer.

- All USDWs are required to be protected by the UIC program

Background on AEs

- AEs allow injection into an aquifer which would otherwise be prohibited by the UIC program.
- AEs have been primarily used to allow mineral, hydrocarbon, or geothermal energy production.
- All AEs require EPA review and approval.
- EPA has final responsibility for AE decisions, even if a state has primacy for the UIC program.
- In approving an Aquifer Exemption, EPA makes a determination that the proposed exemption area is not currently being used as a source of drinking water and will not be used as a source of drinking water in the future.
- The scrutiny on EPA's rationale and consistency in decision making is rising, especially if there are drinking water wells nearby.

Roles & Responsibilities

States/Tribes:

- States or tribes with primacy can identify, after notice and opportunity for a public hearing, additional aquifers for exemption.
- Typically, injection well operators will initiate the process, collecting necessary data and submitting a request for aquifer exemption.
- The State or tribe will review the AE request and determine whether to submit to EPA.

Roles & Responsibilities

EPA:

- The EPA Region evaluates the application and responds to the state.
- If EPA has Direct Implementation of the UIC program in a state, it will review the application directly from the applicant.
- The final determination is documented by the EPA Region in a Statement of Basis that explains the factual, technical, and legal bases for the determination.
- EPA HQs offers support to EPA Regions for substantial or complex requests and to promote national consistency.

Federal Regulations

- Two sections of the federal UIC regulations address the evaluation and review of AE requests by EPA:

  (1) 40 CFR 144.7 – allows the UIC Program Director to identify aquifers or portions of aquifers that are exempt from the definition of a USDW; describes how such exempted areas of aquifers would be delineated; lays out some procedural requirements for AEs.

  (2) 40 CFR 146.4 – once an area to be exempted is identified, 146.4 provides the criteria by which the aquifer is evaluated to determine if an aquifer exemption is available.

Aquifer Exemptions: Criteria for Exemptions (40 CFR 146.4)

(a) It does not currently serve as a source of drinking water; **and**

(b) ***It cannot now and will not in the future serve as a source of drinking water*** because:
(1) It is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible.
(2) It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;
(3) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or
(4) It is located over a Class III well mining area subject to subsidence or catastrophic collapse; **or**

(c) ***The total dissolved solids content of the ground water is more than 3,000 and less than 10,000 mg/l and it is not reasonably expected to supply a public water system***

Aquifer Exemptions
EPA Guidance 34

- EPA developed Guidance 34 (January 9, 1984) to address UIC program revisions, either in response to primacy applications or aquifer exemptions that require a program revision.

- Guidance 34
  - Provides guidelines for reviewing AE requests (Attachment 3) and for applying the regulatory criteria at 40 CFR 146.4.
  - Describes the concept of substantial and non-substantial program revision; addresses review/approval of non-substantial program revisions which are the responsibility of the Region.
  - Discusses evaluation criteria to demonstrate that an aquifer is not a current source of drinking water, including surveys of the proposed exempted area to identify any water supply wells which tap the proposed exempted aquifer.
  - Recommends evaluating at least a ¼ mile area around the proposed exemption boundary to determine if the exempted area currently serves as source of drinking water (this is considered the minimum standard).

Timing

- The UIC regulations allow for Aquifer Exemption requests to be submitted to EPA for a determination either:
  - As part of the State's submission for primacy of the UIC program; or
  - Subsequent to program approval, after public notice and opportunity for a public hearing.
- Upon receipt of an exemption request, EPA compiles and reviews the information used to support the Aquifer Exemption request and may seek additional information from the state and/or other sources.
- EPA then documents its evaluation and analysis of the information the Agency considered in making the determination to approve or deny the Aquifer Exemption request in a Statement of Basis.

Timing cont'd

- The designation of an aquifer as being exempted under the criteria at 40 CFR 146.4(a) and (b) is not final until it has been approved by EPA as a substantial or non-substantial program revision.

- Consideration of aquifer exemption requests submitted under the criterion in 40 CFR 146.4 (c)
  - (c) The total dissolved solids content of the ground water is more than 3,000 and less than 10,000 mg/l and it is not reasonably expected to supply a public water system

AE requests submitted under 40 CFR 146.4(a) and (c) become final if the State Director submits the request in writing to EPA and EPA has not disapproved the request within 45 days of submittal by the State [see 40 CFR 144.7(b)(3)]

Aquifer Exemption Policy Memorandum and Checklist

Aquifer Exemptions
The Policy Memorandum

Key points

- Strives for consistency and predictability in the AE review process.
- Introduces a checklist recommended for use when evaluating AE requests.
- Highlights factors that are likely to make AE requests more complex (including in particular, nearby drinking water wells).
- Suggests early consultation between EPA regions and states to discuss key AE issues likely to make the request complex.
- Articulates EPA's view that an area proposed for exemption "currently serve[s] as a source of drinking water" if wells currently in existence draw water from the exempted area at present or in the future.

Aquifer Exemptions
The Checklist

- Is not a “one size fit all” document as some information described in it may not apply to all AE requests.
- Facilitates discussions between EPA regions and applicants (DI) or states and helps manage expectations.
- Helps with EPA’s documentation of its review and decision on the request, to inform a statement of basis to be included in the Agency’s record of final action.

Current Source Assessment

What constitutes an aquifer that currently serves as a source of drinking water per 40 CFR 146.4(a) i.e., Does the aquifer or its portion proposed for exemption currently serve as source of drinking water?

- First, it must be determined whether any drinking water well (public or private) either exists within the proposed exempted area, or is beyond the exemption boundary but may draw water either currently, or in the future, from the proposed exempted portion of the aquifer.

- If there are drinking water wells within or in close proximity to the proposed exempted area, further analysis would be required.

- If any public or private drinking water wells are capturing or producing (or will capture or produce over the lifetime of the well) drinking water from the proposed exemption area, then the aquifer currently serves as a source of drinking water.

Future Use Assessment

What key factors to consider when demonstrating that an aquifer cannot now and will not in the future serve as a source of drinking water per 40 CFR 146.4(b), or that an aquifer is not reasonably expected to supply a public water system per 40 CFR 146.4(c)?

- Mineral, hydrocarbon, or geothermal producing
- Likelihood that the water in the exempted area would need to be used as a drinking water source in the future.
- Remoteness / Low Population.
- Availability of alternative water supplies to satisfy future drinking water needs
  - Population projections and growth
  - Future demand in the area
  - Alternative water supply in the area
- Available treatment or drilling technologies.
- Cost of obtaining drinking water from deeper aquifers.

Thank You!